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## Chapter 07 Safety and Risk Management

### Introduction

The primary means by which we prevent accidents in wildland fire operations is through aggressive risk management. Our safety philosophy acknowledges that while the ideal level of risk may be zero, a hazard free work environment is not a reasonable or achievable goal in fire operations. Through organized, comprehensive, and systematic risk management, we will determine the acceptable level of risk that allows us to provide for safety yet still achieve fire operations objectives. Risk management is intended to minimize the number of injuries or fatalities experienced by wildland firefighters.

### Policy

Firefighter and public safety is our first priority. All Fire Management Plans and activities must reflect this commitment. The commitment to and accountability for safety is a joint responsibility of all firefighters, managers, and administrators. Every supervisor, employee, and volunteer is responsible for following safe work practices and procedures, as well as identifying and reporting unsafe conditions.

Agency Specific Safety Policy Documents:

- *BLM - BLM Handbook 1112-1, 1112-2*
- *FWS - Service Manual 241 FW7, Firefighting*
- *NPS - DO-50 and RM-50 Loss Control Management Guideline*
- *FS - FSH-6709.11 Health and Safety Code Handbook*

### Guiding Principles

The primary means by which we implement command decisions and maintain unity of action is through the use of common principles of operations. These principles guide our fundamental wildland fire management practices, behaviors, and customs, and are mutually understood at every level of command. They include Risk Management, Standard Firefighting Orders and Watch Out Situations, LCES and the Downhill Line Construction Checklist. These principles are fundamental to how we perform fire operations, and are intended to improve decision making and firefighter safety. They are not absolute rules. They require judgment in application.

### Goal

The goal of the fire safety program is to provide direction and guidance for safe and effective management in all activities. Safety is the responsibility of everyone assigned to wildland fire, and must be practiced at all operational levels from the national fire director, state/regional director, and unit manager to employees in the field. Agency administrators need to stress that firefighter and public safety always takes precedence over property and resource loss. Coordination between the fire management staff and unit safety officer(s) is

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1 essential in achieving this objective. For additional safety guidance and  
2 reference refer to:

- 3 • *Fireline Handbook (PMS 410-1, NFES 0065).*
- 4 • *Incident Response Pocket Guide (IRPG) (PMS 461, NFES 1077).*
- 5 • *Wildland Firefighter Health & Safety Report (Annual MTDC Publication).*
- 6 • *National Interagency Mobilization Guide (NFES 2092).*

7

### 8 **Definitions**

9 **Safety:** A measure of the degree of freedom from risk or conditions that can  
10 cause death, physical harm, or equipment or property damage.

11 **Hazard:** A condition or situation that exists within the working environment  
12 capable of causing physical harm, injury, or damage.

13 **Risk:** The likelihood or possibility of hazardous consequences in terms of  
14 severity or probability.

15 **Risk Management:** The process whereby management decisions are made and  
16 actions taken concerning control of hazards and acceptance of remaining risk.

17

### 18 **Risk Management Process**

19 Fire operations risk management is outlined in the *NWCG Incident Response*  
20 *Pocket Guide (IRPG)*. The five step process provides firefighters and fire  
21 managers a simple, universal, and consistent way to practice risk management  
22 by:

- 23 • Establishing situation awareness.
- 24 • Identifying hazards and assessing the risk.
- 25 • Controlling or eliminating hazards.
- 26 • Making go/no-go decisions based on acceptability of remaining risk.
- 27 • Evaluating effectiveness of hazard controls and continuously re-evaluating  
28 situation.

29

### 30 **Job Hazard Analysis (JHA)/Risk Assessment (RA)**

31 A completed Job Hazard Analysis is required for:

- 32 • Jobs or work practices that have potential hazards.
- 33 • New, non-routine, or hazardous tasks to be performed where potential  
34 hazards exist.
- 35 • Jobs that may require the employee to use non-standard personal protective  
36 equipment (PPE).
- 37 • Changes in equipment, work environment, conditions, policies, or materials.
- 38 • Supervisors and appropriate line managers must ensure that established  
39 JHAs are reviewed and signed prior to any non-routine task or at the  
40 beginning of the fire season.
- 41 • **BLM** - *A risk assessment (in lieu of JHA) must be completed for all non-*  
42 *suppression work practices/projects that have potential hazards. Risk*  
43 *assessments may be developed for wildland fire operational activities at the*  
44 *local unit's discretion. Additional RA information can be obtained at:*  
45 *<http://web.blm.gov/internal/wo-700/wo740/riskmanagement.html>*

1 <http://web.blm.gov/internal/wo-700/wo740/tools/RAWorksheets/>  
2 [RAWorksheet\\_Library.html](http://web.blm.gov/internal/wo-700/wo740/tools/RAWorksheets/RAWorksheet_Library.html)

3

#### 4 **Work/Rest**

5 To assist in mitigating fatigue, days off are allowed during and after  
6 assignments. If necessary to reduce fatigue, the Type 1 or 2 incident commander  
7 (IC) or Agency Administrator (AA) (incident host or home unit) may provide  
8 time off supplementary to mandatory days off requirements. For Type 3-5  
9 incidents, paid days off should be rare exceptions. However, if necessary, the  
10 agency administrator (incident host or home unit) may authorize day(s) off with  
11 pay.

12

13 The IC or AA authority to grant a day off with pay lies within 5 U.S.C. 6104, 5  
14 CFR 610.301-306, and 56 Comp. Gen. Decision 393 (1977).

- 15 • Plan for and ensure that all personnel are provided a minimum 2:1 work to  
16 rest ratio (for every 2 hours of work or travel, provide 1 hour of sleep and/or  
17 rest).
- 18 • Work shifts that exceed 16 hours and/or consecutive days that do not meet  
19 the 2:1 work/rest ratio should be the exception, and no work shift should  
20 exceed 24 hours. However, in situations where this does occur (for  
21 example, initial attack), incident management personnel will resume 2:1  
22 work/rest ratio as quickly as possible.
- 23 • The incident commander or agency administrator must justify work shifts  
24 that exceed 16 hours and those that do not meet 2:1 work to rest ratio.  
25 Justification will be documented in the daily incident records.  
26 Documentation shall include mitigation measures used to reduce fatigue.
- 27 • The Time Officer's/Unit Leader's approval of the Emergency Firefighter  
28 Time Report (OF-288), or other agency pay document, certifies that the  
29 required documentation is on file and no further documentation is required  
30 for pay purposes.

31

32 The work/rest guidelines do not apply to aircraft pilots assigned to an incident.  
33 Pilots must abide by applicable Federal Aviation Administration (FAA)  
34 guidelines, or agency policy if more restrictive.

35

#### 36 **Length of Assignment**

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##### 38 **Assignment Definition**

39 An assignment is defined as the time period (days) between the first full  
40 operational period at the first incident or reporting location on the original  
41 resource order and commencement of return travel to the home unit.

42

##### 43 **Length of Assignment**

44 Standard assignment length is 14 days, exclusive of travel from and to home  
45 unit, with possible extensions identified below. Time spent in staging and

1 preposition status counts toward the 14-day limit, regardless of pay status, for all  
2 personnel, including Incident Management Teams.

3

#### 4 **Days Off**

5 After completion of a 14 day assignment and return to the home unit, two  
6 mandatory days off will be provided (2 after 14). Days off must occur on the  
7 calendar days immediately following the return travel in order to be charged to  
8 the incident. (See Section 12.1-2) (5 U.S.C. 6104, 5 CFR 610.301-306, and 56  
9 Comp. Gen. Decision 393 (1977). If the next day(s) upon return from an  
10 incident is/are a regular work day(s), a paid day(s) off will be authorized.  
11 Regulations may preclude authorizing this for non-NWCG and state/local  
12 employees.

13

14 Pay entitlement, including administrative leave, for a paid day(s) off cannot be  
15 authorized on the individual's regular day(s) off at their home unit. Agencies  
16 will apply holiday pay regulations, as appropriate. A paid day off is recorded on  
17 home unit time records according to agency requirements. Casuals (AD) are not  
18 entitled to paid day(s) off upon release from the incident or at their point of hire.

19

20 Contract resources are not entitled to paid day(s) off upon release from the  
21 incident or at their point of hire.

22

23 Home unit agency administrators may authorize additional day(s) off with  
24 compensation to further mitigate fatigue. If authorized, home unit program  
25 funds will be used. All length of assignment rules apply to aviation resources,  
26 including aircraft pilots, notwithstanding the FAA and agency day off  
27 regulations.

28

#### 29 **Assignment Extension**

30 Prior to assigning incident personnel to back-to-back assignments, their health,  
31 readiness, and capability must be considered. The health and safety of incident  
32 personnel and resources will not be compromised under any circumstance.

- 33 • Assignments may be extended when:
  - 34 ➤ Life and property are imminently threatened.
  - 35 ➤ Suppression objectives are close to being met.
  - 36 ➤ A military battalion is assigned.
  - 37 ➤ Replacement resources are unavailable, or have not yet arrived.

38

39 Upon completion of the standard 14 day assignment, an extension of up to an  
40 additional 14 days may be allowed (for a total of up to 30 days, inclusive of  
41 mandatory days off, and exclusive of travel). Regardless of extension duration,  
42 two mandatory days off will be provided prior to the 22<sup>nd</sup> day of the assignment.

43

44 Contracts, Incident Blanket Purchase Agreements (I-BPA), and Emergency  
45 Equipment Rental Agreements (EERA) should be reviewed for appropriate pay  
46 requirements and length of assignment. If the contract, (I-BPA) or EERA do not

1 address this, the incident Finance/Administration Section Chief or the  
2 procurement official should be consulted as to whether compensation for a day  
3 off is appropriate.

4

#### 5 **Single Resource/Kind Extensions**

6 The section chief or incident commander will identify the need for assignment  
7 extension and will obtain the affected resource's concurrence. The section chief  
8 and affected resource will acquire and document the home unit supervisor's  
9 approval.

10

11 The incident commander approves the extension. If a convened geographic or  
12 national multi-agency coordinating group (GMAC/NMAC) directs, the incident  
13 commander approves only after GMAC/NMAC concurrence.

14

15 If the potential exists for reassignment to another incident during the extension,  
16 the home unit supervisor and affected resource will be advised and must concur  
17 prior to reassignment.

18

#### 19 **Incident Management Team Extensions**

20 Incident management team extensions are to be negotiated between the incident  
21 agency administrator, the incident commander, and the GMAC/NMAC (if  
22 directed).

23

#### 24 **Management Directed Days Off at Home Unit**

25 Supervisors must manage work schedules for initial attack, dispatch and incident  
26 support personnel during extended incident situations. During periods of non-  
27 routine or extended activity, these employees will have a minimum of 1 day off  
28 in any 21-day period.

29

#### 30 **Driving Standard**

31 All employees driving motor vehicles are responsible for the proper care,  
32 operation, maintenance and protection of the vehicle. The use of government-  
33 owned, rented, or leased motor vehicles is for official business only.  
34 Unauthorized use is prohibited.

35

#### 36 **General Driving Policy**

- 37 • Employees must have a valid state driver's license in their possession for  
38 the appropriate vehicle class before operating the vehicle. Operating a  
39 government-owned or rental vehicle without a valid state driver's license is  
40 prohibited.
- 41 • All drivers whose job duties require the use of a motor vehicle will receive  
42 initial defensive driver training within three months of entering on duty and  
43 refresher driver training every three years thereafter.
- 44 • The operator and all passengers are required to wear seat belts and obey all  
45 federal and state laws.
- 46 • All traffic violations or parking tickets will be the operator's responsibility.

- 1 • All driving requiring a CDL will be performed in accordance with  
2 applicable Department of Transportation regulations.
- 3 • Seat belts must be available and used in agency motor vehicles. Without  
4 exception, seat belts must be worn at all times by motor vehicle operators  
5 and passengers, regardless of the distance to be traveled or the time  
6 involved. If any employee fails to fasten their seat belt while riding in a  
7 vehicle on official business, they are subject to disciplinary action as  
8 determined by local management.
- 9 • Employees operating any motor vehicle with a GVWR of 26,000 pounds or  
10 more, towing a vehicle 10,000 pounds GVWR or more, hauling hazardous  
11 material requiring the vehicle to be placarded, or transporting 16 or more  
12 persons (including the driver) must possess a valid Commercial Drivers  
13 License (CDL) with all applicable endorsements.
- 14 • **BLM** - *All employees operating a Government motor vehicle will be*  
15 *required to submit Form DI-131 (Application for U.S. Government Motor*  
16 *Vehicle Operator's Identification Card) and OF-345 (Physical Fitness*  
17 *Inquiry for Motor Vehicle Operators). When the supervisor signs the DI-*  
18 *131, the employee is authorized to operate Government-owned or leased*  
19 *vehicles, or privately-owned vehicles on official business. Individual office*  
20 *forms equivalent to the OF-345 and DI-131 are acceptable.*
- 21 • **FS** - *Policy requires all operators of government owned, or leased vehicles*  
22 *to have a Forest Service issued identification card indicating the type of*  
23 *vehicles or equipment the holder is authorized and qualified to operate.*
- 24 • **BLM/FWS/NPS** - *The DOI has granted wildland fire agencies a waiver to*  
25 *allow employees between the ages of 18 and 21 to operate agency*  
26 *commercial fire vehicles using a state issued CDL under the specific*  
27 *conditions as stated below:*
- 28 ➤ Drivers with a CDL may only drive within the state that has issued the  
29 CDL and must comply with the state's special requirements and  
30 endorsements.
- 31 ➤ These drivers must only drive vehicles that are equipped with visible  
32 and audible signals, and are easily recognized as fire fighting  
33 equipment. This excludes, but is not limited to, school buses used for  
34 crew transport and "low-boy" tractor trailers used for construction  
35 equipment transport.
- 36 ➤ Supervisors must annually establish and document that these drivers  
37 have a valid license (i.e. that the license has not been suspended,  
38 revoked, canceled, or that the employee has not been otherwise  
39 unqualified from holding a license - 485 DM 16.3.B (1), ensure that the  
40 employee has the ability to operate the vehicle(s) safely in the  
41 operational environment assigned (485 DM 16.3.B (2), and review and  
42 validate the employee's driving record (485 DM 16.3.B(4)).
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1 **Non-Incident Operations Driving**

2 Refer to the current driving standards for each individual agency.

3

4 **Mobilization and Demobilization**

5 To manage fatigue, every effort should be made to avoid off unit (excluding IA  
6 response) mobilization and demobilization travel between 2200 hrs and 0500  
7 hrs.

8

9 **Incident Operations Driving**

10 This policy addresses driving by personnel actively engaged in wildland fire  
11 suppression or all-risk activities; these include driving while assigned to a  
12 specific incident (check-in to check-out) or during initial attack fire response  
13 (includes time required to control the fire and travel to a rest location).

- 14 • Agency resources assigned to an incident or engaged in initial attack fire  
15 response will adhere to the current agency work/rest policy for determining  
16 length of duty day.
- 17 • No driver will drive more than 10 hours (behind the wheel) within any duty-  
18 day.
- 19 • Multiple drivers in a single vehicle may drive up to the duty-day limitation  
20 provided no driver exceeds the individual driving (behind the wheel) time  
21 limitation of 10 hours.
- 22 • A driver shall drive only if they have had at least 8 consecutive hours off  
23 duty before beginning a shift. Exception to the minimum off-duty hour  
24 requirement is allowed when essential to:
  - 25 > Accomplish immediate and critical suppression objectives.
  - 26 > Address immediate and critical firefighter or public safety issues.
- 27 • As stated in the current agency work/rest policy, documentation of  
28 mitigation measures used to reduce fatigue is required for drivers who  
29 exceed 16 hour work shifts. This is required regardless of whether the  
30 driver was still compliant with the 10 hour individual (behind the wheel)  
31 driving time limitations.
- 32 • *FWS/NPS - Program funds are authorized to pay for the cost of CDL*  
33 *licensing fees and exams, necessary for employees to operate fire*  
34 *equipment, with one exception. That exception involves those cases where*  
35 *a test has been failed and must be retaken, in which case the employee will*  
36 *be responsible for costs associated with additional testing.*

37

38 **Fire Vehicle Operation Standards**

39 Operators of all vehicles must abide by state traffic regulations. Operation of all  
40 vehicles will be conducted within the limits specified by the manufacturer.  
41 Limitations based on tire maximum speed ratings and Gross Vehicle Weight  
42 restrictions must be followed. It is the vehicle operator's responsibility to  
43 ensure vehicles abide by these and any other limitations specified by agency or  
44 state regulations.

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1 **Personal Protective Equipment (PPE)**

2 All personnel are required to use Personal Protective Equipment (PPE)  
3 appropriate for their duties and/or as identified in JHAs/RAs. Employees must  
4 be trained to use safety equipment effectively. PPE devices will be used only  
5 when equipment guards, engineering controls, or management control do not  
6 adequately protect employees.

7

8 **Required Fireline PPE includes:**

- 9 • Wildland fire boots
- 10 • Fire shelter
- 11 • Hard hat with chinstrap
- 12 • Goggles/safety glasses as identified by JHAs/RAs)
- 13 • Ear plugs/hearing protection
- 14 • Yellow aramid shirts
- 15 • Aramid trousers
- 16 • Leather gloves
- 17 • Wear additional PPE as identified by local conditions, material safety data  
18 sheet (MSDS), or JHA/RA

19

20 Polyester, polypropylene, and nylon materials are not to be worn, because most  
21 synthetic fibers melt when exposed to flame or extreme radiant heat. Personnel  
22 should wear only undergarments made of 100 percent natural fibers, aramid, or  
23 other fire resistant materials.

24

25 Aramid clothing should be cleaned or replaced whenever soiled, especially  
26 when soiled with petroleum products. Aramid clothing will be replaced when  
27 the fabric is so worn as to reduce the protection capability of the garment or is so  
28 faded as to significantly reduce the desired visibility qualities.

29

30 Any modification to personal protective equipment that reduces its protection  
31 capability such as iron-on logos, and sagging of pants, is an unacceptable  
32 practice and will not be allowed on fires.

33

34 **Head Protection**

35 Personnel must be equipped with hard hats and wear them at all times while on  
36 the fireline. Hard hats must be equipped with a chinstrap, which must be  
37 fastened while riding in, or in the vicinity of, helicopters.

38

39 Acceptable hardhats for fireline use are "Helmet, Safety, Plastic" (NFES #0109,  
40 NSN 8415-01-055-2265) listed in listed in *NWCG National Fire Equipment*  
41 *System Catalog: Part 1, Fire Supplies and Equipment*, or equivalent hardhat  
42 meeting the National Fire Protection Association (NFPA) 1977, Standard on  
43 Protective Clothing and Equipment for Wildland Fire Fighting.

44

1 Hard hats consist of two components - the shell and the suspension - which work  
2 together as a system. Alteration of either of these components compromises the  
3 effectiveness of the system (e.g. wearing hardhat backwards) and is not allowed.  
4 Both components require periodic inspection and maintenance. Specific  
5 inspection and maintenance instructions are found in Missoula Technology and  
6 Development Center (MTDC) Tech Tip publication, *Your Hardhat: Inspection*  
7 *and Maintenance* (0267-2331-MTDC). [http://www.fs.fed.us/t-](http://www.fs.fed.us/t-d/pubs/htmlpubs/htm02672331/index.htm)  
8 [d/pubs/htmlpubs/htm02672331/index.htm](http://www.fs.fed.us/t-d/pubs/htmlpubs/htm02672331/index.htm).

#### 10 **Eye and Face Protection**

11 The following positions require the wearing of eye protection (meets *ANSI*  
12 *Z87.1* Standards):

- 13 • Nozzle operator
- 14 • Chainsaw operator/faller
- 15 • Helibase and ramp personnel
- 16 • Wildland fire chemical mixing personnel
- 17 • Other duties may require eye protection as identified in a specific JHA/RA

18  
19 Full face protection in the form of a face shield in compliance with *ANSI Z87.1*  
20 shall be worn when working in any position where face protection has been  
21 identified as required in the job specific JHA/RA: Batch Mixing for Terra-  
22 Torch®, power sharpener operators, etc.

#### 24 **Hearing Protection**

25 Personnel who are exposed to a noise level in excess of 85db must be provided  
26 with, and wear, hearing protection. This includes, but is not limited to:

- 27 • Chainsaw operators/fallers.
- 28 • Pump operators.
- 29 • Helibase and aircraft ramp personnel.
- 30 • Wildland fire chemical mixing personnel.
- 31 • Any other personnel exposed on a regular basis to damaging noise levels.

32  
33 Other duties may require hearing protection as identified in a specific JHA/RA.

34  
35 Employees may be required to be placed under a hearing conservation program  
36 as required by *29 CFR 1910.95*. Consult with local safety & health personnel  
37 for specifics regarding unit hearing conservation program.

- 38 • *DOI - Employees may be placed under a hearing conservation program as*  
39 *identified in approved Medical Standards Program waivers with restrictions*  
40 *or risk mitigation decision memorandum.*

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**1 Neck Protection**

2 Face and neck shrouds are not required PPE. However, if used, face and neck  
3 shrouds shall meet the requirements of FS specification 5100-601 or *NFPA*  
4 *1977 Standard on Protective Clothing and Equipment for Wildland Fire*  
5 *Fighting*.

6  
7 Shrouds should be positioned in a manner that allows for immediate use. For  
8 additional information see MTDC Tech Tip *Improved Face and Neck Shroud*  
9 *for Wildland Firefighters, 2004* (0451-2323-MTDC).  
10 <http://www.nifc.gov/wfstar/index.htm>.

11  
12 The use of shrouds is not required and should be as a result of onsite risk  
13 analysis.

**14 Leg Protection**

15 All chain saw operators will wear chainsaw chaps meeting *NFPA 1977,*  
16 *Standard on Protective Clothing and Equipment for Wildland Fire Fighting* or  
17 the United States Forest Service Specification 6170-4F. Chaps meeting United  
18 States Forest Service Specification 6170-4E must be replaced with chaps  
19 meeting United States Forest Service Specification 6170-4F by January 1, 2011.  
20 Chainsaw chaps shall be maintained in accordance with MTDC Publication,  
21 *Inspecting and Repairing Your Chainsaw Chaps - User Instructions* (0567-2816-  
22 MTDC) and MTDC Safety Alert 2009-01, June 29, 2009.  
23 <http://www.nifc.gov/wfstar/index.htm>.

**24 Wildland Fire Boot Standard**

25  
26 Personnel assigned to wildland fires must wear a minimum of 8-inch high, lace-  
27 type exterior leather work boots with Vibram-type, melt-resistant soles. The 8-  
28 inch height requirement is measured from the bottom of the heel to the top of the  
29 boot. Alaska is exempt from the Vibram-type sole requirement. All boots that  
30 meet the footwear standard as described above are authorized for firefighting.

31  
32  
33 The boots are a condition of employment for firefighting positions and are  
34 purchased by the employee prior to employment.

- 35 • *FWS - Red carded FWS firefighters will be provided a set amount of station*  
36 *funding (as determined by each region), toward the purchase of approved*  
37 *wildland fire boots, not more than once every three years. Emergency or*  
38 *casual firefighters will provide their own boots.*
- 39 • *NPS - Government funds will be utilized for purchase of wildland fire boots*  
40 *for those employees currently red carded/certified in positions which*  
41 *require wildland and prescribed fireline duties. The individual employee*  
42 *must be available to perform those duties when assigned; if not routinely*  
43 *available for park fire assignments, FIREPRO funds should not be used to*  
44 *purchase boots for that employee.*
- 45 • *NPS - FIREPRO funds, not to exceed \$100 a pair, may be used to purchase*  
46 *or repair boots. Other government funds, such as from safety, protection or*

- 1 maintenance accounts, may also be used for purchase or to augment  
2 FIREPRO funds, dependent on local management direction. Costs to repair  
3 boots not damaged on fire should be charged to other appropriate accounts.
- 4 • **NPS** - It is the responsibility of the local FMO to determine those  
5 employees requiring boots as personal protective equipment, and the  
6 frequency of necessary replacement or repair. Boots will be considered  
7 similar to uniform items and will not be subject to cache item return, due to  
8 health, sanitation, and individual sizing considerations.

### 10 Respiratory Protection

11 The use of any respiratory protection, (e.g., dust masks, half-mask respirators,  
12 SCBA) must be in compliance with agency safety and health regulations and  
13 OSHA's Respiratory Protection Standard 29 CFR 1910.134.

- 14 • **BLM/FWS/NPS** - Managers and supervisors will not knowingly place  
15 wildland firefighters in positions where exposure to noxious gases or  
16 chemicals would require the use of self-contained breathing apparatus.
- 17 • **FS - FSM - 5135.3 - Self-Contained Breathing Apparatus - Wildland**  
18 **firefighters may use only SCBA which are compliant with NFPA 1981,**  
19 **Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for**  
20 **Emergency Services. SCBA may only be used when contaminants from**  
21 **vehicle, dump, structure, or other non-wildland fuel fire cannot be avoided**  
22 **while meeting wildland fire suppression objectives (29 CFR 1910.134,**  
23 **Respiratory Protection). If such an apparatus is not available, avoid**  
24 **exposure to smoke from these sources.**
- 25 • **FS** - The acquisition, training, proper use, employee health surveillance  
26 programs, inspection, storage, and maintenance of respiratory protection  
27 equipment must comply with applicable National Fire Protection  
28 Association standards and 29 CFR 1910.134, and be justified by a Job  
29 Hazard Analysis. Where the acquisition and use of an SCBA is approved, it  
30 may be carried only on a fire engine and its use must be consistent with  
31 FSM 5130.2 and FSM 5130.3.

### 33 Fire Shelters

34 Fire shelters will be issued and carried in a readily accessible manner by all line  
35 personnel. Firefighters will inspect their fire shelters at the beginning of each  
36 fire season and periodically throughout the year, to ensure they are serviceable.  
37 New generation fire shelters are required for all wildland firefighters as of  
38 January 1, 2010. For more information refer to  
39 [http://www.nifc.gov/fire\\_equipment/fire\\_shelter.htm](http://www.nifc.gov/fire_equipment/fire_shelter.htm)

40  
41 Training in inspection and deployment of new generation fire shelters will be  
42 provided prior to issuance.

43  
44 Training shelters will be deployed at required Annual Fireline Safety Refresher  
45 Training. No live fire exercises for the purpose of fire shelter deployment  
46 training will be conducted.

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1 The deployment of shelters is to be viewed as a last resort, and will not be used  
2 as a tactical tool. Supervisors and firefighters must never rely on fire shelters  
3 instead of using well-defined escape routes and safety zones. When deployed  
4 on a fire, fire shelters will be left in place if it is safe to do so and not be  
5 removed pending approval of authorized investigators.

6

#### 7 **Specialized or Non Standard Personal Protective Equipment (PPE)**

8 Specialized PPE not routinely supplied by the agency required to perform a task  
9 safely must be ordered in accordance with agency direction.

10

11 A JHA/Risk Assessment must be completed and reviewed by the Unit Safety  
12 Officer and the supervisor's approval is required. Items must meet agency and  
13 industry standards for specific intended use. Cold weather flame resistant outer  
14 wear shall be in compliance with NFPA 1977, *Standard on Protective Clothing  
15 and Equipment for Wildland Fire Fighting*. All cold weather inner wear should  
16 be composed of 100% natural fibers (cotton, wool or silk) or other flame  
17 resistant material such as aramid.

18

#### 19 **High Visibility Vests**

20 In order to meet 23 CFR 634, high visibility apparel should be worn whenever a  
21 firefighter is working on or in the right of way of a public roadway, unless there  
22 is a reasonable chance that the employee will be exposed to flames, high heat or  
23 hazardous materials, or if the safety apparel hinders the firefighter's ability to do  
24 his or her job.

- 25 • Employees must wear high visibility safety apparel that meets ANSI/ISEA  
26 107, Class 2 or 3.
- 27 • Apparel that meets ANSI/ISEA 107 currently does not meet the flame  
28 resistance requirements of the NFPA Standard on Protective Clothing and  
29 Equipment for Wildland Fire Fighting. The high visibility safety apparel  
30 should not be worn if:
  - 31 ➤ There is a reasonable chance that the employee may be exposed to  
32 flames, high heat or hazardous materials.
  - 33 ➤ The high visibility garment hinders an employee's ability to do their  
34 job because it prevents necessary motion or because it limits access to  
35 necessary equipment such as radios or fire shelters.

36

#### 37 **Fireline Safety**

38

#### 39 **Incident Briefings**

40 Fire managers must ensure that safety briefings are occurring throughout the fire  
41 organization, and that safety factors are addressed through the IC or their  
42 designee and communicated to all incident personnel at operational briefings.  
43 The identification and location of escape routes and safety zones must be  
44 stressed. A briefing checklist can be found in the *Incident Response Pocket  
45 Guide (IRPG)*.

46

1 **LCES - A System for Operational Safety**

2 LCES will be used in all operational briefings and tactical operations as per the  
3 *Incident Response Pocket Guide (IRPG)*.

- 4 • L - Lookout(s)  
5 • C - Communication(s)  
6 • E - Escape Route(s)  
7 • S - Safety Zone(s)

8  
9 **Incident Safety Oversight**

10 Agency administrators must be actively involved in the management of wildland  
11 fires, and personally visit an appropriate number of escaped fires each year.

12  
13 Agency administrators and/or fire managers may request additional safety  
14 oversight when:

- 15 • A fire escapes initial attack or when extended attack is probable.  
16 • There is complex or critical fire behavior.  
17 • There is a complex air operation.  
18 • The fire is in an urban intermix/interface.

19  
20 Every individual has the right to turn down unsafe assignments. When an  
21 individual feels an assignment is unsafe they also have the obligation to identify,  
22 to the degree possible, safety alternatives for completing that assignment. The  
23 IRPG contains process for How to Properly Refuse Risk.

24  
25 **Location of Fire Camps and Plans to Remain in Place**

26 Fire camps should be located in areas that will service the incident for the long  
27 term without having to relocate. Due to such factors as extreme fire behaviors,  
28 fire camp locations might be compromised. Incident commanders are to be  
29 especially vigilant to quickly identify situations that may put their fire camp(s)  
30 or any other adjacent fire camps in jeopardy. As such, planning for evacuation  
31 and/ or remain in place actions should be considered. Evacuation plans at a  
32 minimum shall include:

- 33 • Documented risk assessment  
34 • Trigger points  
35 • Egress routes  
36 • Transportation for all personnel  
37 • Accountability for all personnel  
38 • Those individuals not meeting 310-1 qualifications will be considered  
39 escorted visitors as addressed elsewhere in this chapter.  
40 • *FS - Plans, at a minimum shall also include:*  
41 ➤ *ICP protection strategy referenced in the IAP.*  
42 ➤ *Live-ability considerations including air quality, functionality of*  
43 *location and facilities, and safety factors for post burn conditions.*

44  
45

**1 Standard Safety Flagging**

2 The NWCG recommends the following Safety Zone/Escape Route flagging for  
3 wildland fire activities:

- 4 • Hot-pink flagging marked “Escape Route” (NFES 0566). Crews with  
5 colorblind members may wish to carry and utilize fluorescent chartreuse  
6 flagging (NFES #2396).
- 7 • Hazards. Yellow with black diagonal stripes, 1 inch wide (NFES 0267). If  
8 the above recommendation is not utilized on an incident, the incident will  
9 need to identify the selected color and it make known to all firefighters.

10

**11 Unexploded Ordnance**

12 General guidance is as follows: If Unexploded Ordnance (UXO) is suspected,  
13 do not enter the area. Small arms (rifle and shotgun) munitions areas should be  
14 flagged and avoided by fire personnel. For suspected larger munitions, the area  
15 must be avoided by fire personnel and contact local law enforcement bomb  
16 squad or nearest Department of Defense agency. Each unit will determine  
17 which employees are authorized to enter known or potential hazardous  
18 substance release sites, and the responsibility for these determinations remains  
19 with each agency administrator. For additional UXO safety information, see  
20 current IRPG.

21

**22 Hazardous Materials**

23 Employees that discover any unauthorized waste dump or spill site that contains  
24 indicators of potential hazardous substances (e.g, containers of unknown  
25 substances, pools of unidentifiable liquids, piles of unknown solid materials,  
26 unusual odors, or any materials out of place or not associated with an authorized  
27 activity) should take the following precautions:

28 Follow the procedures in the IRPG.

- 29 • Treat each site as if it contains harmful materials.
- 30 • Do not handle, move, or open any container, breathe vapors, or make  
31 contact with the material.
- 32 • Move a safe distance upwind from the site.
- 33 • Contact appropriate personnel. Generally, this is the Hazardous Materials  
34 Coordinator for the local office.
- 35 • Firefighters need to immediately report H<sub>2</sub>S or potential exposure and seek  
36 immediate medical care.
- 37 • *BLM/FWS/NPS - Agencies require that all field personnel complete a First  
38 Responder Awareness training. Firefighters are required to take an annual  
39 refresher for Hazardous Material protocol.*

40

41 The following general safety rules shall be observed when working with  
42 chemicals:

- 43 • Read and understand the Material Safety Data Sheets.
- 44 • Keep the work area clean and orderly.
- 45 • Use the necessary safety equipment.

- 1 • Label every container with the identity of its contents and appropriate  
2 hazard warnings.
- 3 • Store incompatible chemicals in separate areas.
- 4 • Substitute less toxic materials whenever possible.
- 5 • Limit the volume of volatile or flammable material to the minimum needed  
6 for short operation periods.
- 7 • Provide means of containing the material if equipment or containers should  
8 break or spill their contents.

9

### 10 **Responding to Wildland Fires in or near Oil/Gas Operations**

11 For those offices with oil and gas operations within their fire suppression  
12 jurisdiction, the following is the minimum standard operating procedures to help  
13 ensure the health and safety of wildland firefighters:

- 14 • Firefighters shall receive annual oil and gas hazard recognition and  
15 mitigation training.
- 16 • Local unit shall complete a JHA/RA for wildland fire suppression activities  
17 in oil and gas areas and provide a copy with a briefing to all local and  
18 incoming resources. See WFSTAR website for example of a RA.  
19 <http://www.nifc.gov/wfstar/index.htm>.
- 20 • Establish Response Protocols which includes notification procedures to  
21 respective oil and gas company(s).
- 22 • Ensure oil and gas resource advisors are consulted.
- 23 • Ensure that at least one member of each squad or engine crew is  
24 knowledgeable in the use and data interpretation of the Hydrogen Sulfide  
25 gas monitor. Training on the device will include at a minimum:
  - 26 ➤ Equipment charging and maintenance of sensors
  - 27 ➤ Startup, zeroing, calibration and bump testing procedures as  
28 recommended by the manufacturer.
  - 29 ➤ How the monitor elicits a warning alarm (visual, auditory, vibration)
  - 30 ➤ Understand Peak Reading, Short Term Exposure Limits (STEL), and  
31 Time Weighted Averages.
  - 32 ➤ Understand how to set the monitors alarm threshold.
- 33 • The monitor's alarm shall be set at the current American Conference on  
34 Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (10  
35 PPM 2008) and STEL (15 PPM 2008).
- 36 • If hydrogen sulfide gas (H<sub>2</sub>S) is encountered, immediately disengage and  
37 leave area.
- 38 • Do not establish incident base camps or staging areas in or near oil and gas  
39 operations.

40

41 The following websites provide additional information and training recourses:

- 42 • [http://www.nifc.gov/wfstar/oil\\_gas.htm](http://www.nifc.gov/wfstar/oil_gas.htm)
- 43 • <http://iirdb.wildfirelessons.net/main/Reviews.aspx>

44

45

1 **Responding to Wildland Fires in or Near Radioactive Locations**

2 Abandoned uranium mines and other potential radioactive sites exist in many  
3 areas of public lands. When these areas are identified, local management should  
4 provide information and direction on operations to be used. General knowledge  
5 and understanding of potential radiation exposure is necessary for wildland fire  
6 program management to make valid risk management decisions in these areas.

7 The following websites provide this information and general guidelines:

- 8 • [http://www.nifc.gov/policies/red\\_book/doc/RadiationDocument.pdf](http://www.nifc.gov/policies/red_book/doc/RadiationDocument.pdf)
- 9 • [http://www.nifc.gov/policies/red\\_book/doc/RadiationGuidance.pdf](http://www.nifc.gov/policies/red_book/doc/RadiationGuidance.pdf)

10

11 **Smoke and Carbon Monoxide**

12 Site specific hazards and mitigations need to be identified to reduce firefighter  
13 exposure to smoke and potential carbon monoxide.

14

15 **Six Minutes for Safety Training**

16 It is recommended that daily Six Minutes for Safety training be conducted that  
17 focuses on high-risk, low frequency activities that fire personnel may encounter  
18 during a fire season. A daily national Six Minutes for Safety briefing can be  
19 found at: [http://www.nifc.gov/sixminutes/dsp\\_sixminutes.php](http://www.nifc.gov/sixminutes/dsp_sixminutes.php) or the National  
20 Situation Report.

21

22 **Safety for Non-Operational Personnel Visiting Fires**

23 A wide variety of personnel such as agency administrators, other agency  
24 personnel, dignitaries, members of the news media, etc may visit incidents. The  
25 following standards apply to all visitors.

26

27 **Visits to an Incident Base**

28 Recommended PPE for visits to incident base camps and other non-fireline field  
29 locations.

- 30 • Lace-up, closed toe shoes/boots with traction soles and ankle support.
- 31 • Long trousers.
- 32 • Long-sleeve shirt.
- 33 • For agency personnel, the field uniform is appropriate.

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**1 Visits to the Fireline/RX Burns**

2 Visits to the fireline must have the approval of the IC/Burn Boss.

- 3 • Visitors must maintain communications with the DIVS or appropriate
- 4 fireline supervisor of the area they are visiting.
- 5 • Required PPE:
- 6 ➤ Wildland fire boots.
- 7 ➤ Yellow aramid shirts.
- 8 ➤ Aramid trousers.
- 9 ➤ Hard hat with chinstrap.
- 10 ➤ Leather gloves.
- 11 ➤ Fire shelter.
- 12 • Required equipment/supplies:
- 13 ➤ Hand tool.
- 14 ➤ Water canteen.

15  
16 Visitors to the Fireline/RX Burns may be “Escorted” or “Non-Escorted”  
17 depending on the following requirements:

**18 Non-Escorted Visits**

19 Visitors must have a minimum physical fitness level of “light”.

- 20 • Must have adequate communications and radio training.
- 21 • Completed the following training:
- 22 ➤ Introduction to Fire Behavior (S-190).
- 23 ➤ Firefighter Training (S-130).
- 24 ➤ Annual Fireline Safety Refresher Training.
- 25 • Deviation from this requirement must be approved by the IC for other non-
- 26 escorted support personnel involved in vehicle operations or other support
- 27 functions on established roadways and working in areas which pose no fire
- 28 behavior threat.
- 29 • *BLM/FWS - Law Enforcement physical fitness standard is accepted as*
- 30 *equivalent to a “light” WCT work category.*

**31 Escorted Visits**

32  
33 All non-incident, non-agency, visitors lacking the above training and physical  
34 requirements must be escorted while on the fireline.

- 35 • Visitors must receive training in the proper use of PPE.
- 36 • Requirement for handtool and water to be determined by escort.
- 37 • Visitors must be able to walk in mountainous terrain and be in good
- 38 physical condition with no known limiting conditions.
- 39 • Escorts must be minimally qualified at the Single Resource Boss. Any
- 40 deviation from this requirement must be approved by the IC.

**41 Helicopter Observation Flights**

42  
43 Visitors who take helicopter flights to observe fires must receive a passenger  
44 briefing and meet the following requirements:

- 1 • Required PPE:
- 2 ➤ Flight helmet
- 3 ➤ Leather boots
- 4 ➤ Fire-resistant clothing
- 5 ➤ All leather or leather and aramid gloves

6  
7 Occasional passengers/visitors have no training requirement, but a qualified  
8 flight manager must supervise loading and unloading of passengers.

#### 9 10 **Fixed-Wing Observation Flights**

- 11 • Required PPE:
- 12 ➤ No PPE is required for visitors and agency personnel who take fixed-  
13 wing flights to observe fires. However, a passenger briefing is required,  
14 and the flight level must not drop below 500 feet AGL.

#### 15 16 **SAFENET**

17 SAFENET is a form, process, and method for reporting and resolving safety  
18 concerns encountered in any aspect (e.g., preparedness, training, etc.) of  
19 wildland fire or all hazard incident management. The information provided on  
20 the form will provide important, safety-related data to the National Interagency  
21 Fire Center, and determine long-term trends and problem areas.

22 The objectives of the form and process are:

- 23 • To provide immediate reporting and correction of unsafe situations or close  
24 calls in wildland fire.
- 25 • To provide a means of sharing safety information throughout the fire  
26 community.
- 27 • To provide long-term data that will assist in identifying trends.
- 28 • Primarily intended for wildland and prescribed fire situations, however,  
29 SAFENET can be used for training and all hazard events.

30  
31 Individuals who observe or who are involved in an unsafe situation shall initiate  
32 corrective actions if possible, and then report the occurrence using SAFENET.  
33 You are encouraged, but not required, to put your name on the report.  
34 Prompt replies to the originator (if name provided), timely action to correct the  
35 problem, and discussion of filed SAFENETs at local level meetings encourage  
36 program participation and active reporting.

37  
38 SAFENET is not the only way to correct a safety-related concern and it does not  
39 replace accident reporting or any other valid agency reporting method. It is an  
40 efficient way to report a safety concern. It is also a way for front line  
41 firefighters to be involved in the daily job of being safe and keeping others safe,  
42 by documenting and helping to resolve safety issues. SAFENETs may be filed:

- 43 • electronically at <http://safenet.nifc.gov>
- 44 • verbally by telephone at 1-888-670-3938.

45

**1 Accident/Injury Reporting**

2 The Occupational Safety and Health Administration (OSHA) mandate that all  
3 accidents and injuries be reported in a timely manner. This is important for the  
4 following reasons:

- 5 • To protect and compensate employees for incidents that occur on-the-job.
- 6 • To assist supervisors and safety managers in taking corrective actions and  
7 establish safer work procedures.
- 8 • To determine if administrative controls or personal protective equipment are  
9 needed to prevent a future incident of the same or similar type.
- 10 • To provide a means for trend analysis.

11

12 Employees are required to immediately report to their supervisor every job-  
13 related accident. Managers and supervisors shall ensure that an appropriate  
14 level of investigation is conducted for each accident and record all personal  
15 injuries and property damage. Coordinate with your human resources office or  
16 administrative personnel to complete appropriate Officer of Worker's  
17 Compensation (OWCP) forms.

- 18 • Reporting is the responsibility of the injured employee's home unit  
19 regardless of where the accident or injury occurred.
- 20 • DOI employees will report accidents using the Safety Management  
21 Information System (SMIS) at <https://www.smis.doi.gov/>. Supervisors  
22 shall complete SMIS report within six working days after the  
23 accident/injury.
- 24 • Forest Service employees will use the Safety and Health Information Portal  
25 System (SHIPS) through the Forest Service Dashboard.

26

**27 Required Treatment for Burn Injuries**

28 The following standards will be used when any firefighter sustains burn injuries,  
29 regardless of agency jurisdiction.

30

31 After on-site medical response, initial medical stabilization, and evaluation are  
32 completed; the agency administrator or designee having jurisdiction for the  
33 incident and/or firefighter representative (e.g. Crew Boss, Medical Unit Leader,  
34 Compensations for Injury Specialist, etc.) should coordinate with the attending  
35 physician to ensure that a firefighter whose injuries meet any of the following  
36 burn injury criteria is immediately referred to the nearest regional burn center. It  
37 is imperative that action is expeditious, as burn injuries are often difficult to  
38 evaluate and may take 72 hours to manifest themselves. These criteria are based  
39 upon American Burn Association criteria as warranting immediate referral to an  
40 accredited burn center.

41

42 The decision to refer the firefighter to a regional burn center is made directly by  
43 the attending physician or may be requested of the physician by the agency  
44 administrator or designee having jurisdiction and/or firefighter representative.

45

1 The agency administrator or designee for the incident will coordinate with the  
2 employee's home unit to identify a Workers Compensation liaison to assist the  
3 injured employee with workers compensation claims and procedures.

4  
5 Workers Compensation benefits may be denied in the event that the attending  
6 physician does not agree to refer the firefighter to a regional burn center. During  
7 these rare events, close consultation must occur between the attending physician,  
8 the firefighter, the agency administrator or designee and/or firefighter  
9 representative, and the firefighter's physician to assure that the best possible  
10 care for the burn injuries is provided.

#### 11 **Burn Injury Criteria**

- 12 • Partial thickness burns (second degree) involving greater than 5% Total  
13 Body Surface Area (TBSA).
- 14 • Burns (second degree) involving the face, hands, feet, genitalia, perineum,  
15 or major joints.
- 16 • Third-degree burns of any size are present.
- 17 • Electrical burns, including lightning injury are present.
- 18 • Inhalation injury is suspected.
- 19 • Burns are accompanied by traumatic injury (such as fractures).
- 20 • Individuals are unable to immediately return to full duty.
- 21 • When there is any doubt as to the severity of the burn injury, the  
22 recommended action should be to facilitate the immediate referral and  
23 transport of the firefighter to the nearest burn center.
- 24
- 25

26 A list of possible burn care facilities can be found at:  
27 <http://www.blm.gov/nifc/st/en/prog/fire/im.html>.

28  
29 For additional NWCG incident emergency medical information see:  
30 <http://www.nwcg.gov/teams/shwt/iemtg/index.html>.

#### 31 **Critical Incident Management**

32 The NWCG has published the *Agency Administrator's Guide to Critical*  
33 *Incident Management* (PMS 926). This guide is designed as a working tool to  
34 assist agency administrators with the chronological steps in managing a critical  
35 incident. This document includes a series of checklists which outlines agency  
36 administrators and other functional area's oversight and responsibilities. The  
37 guide is not intended to replace local emergency plans or other specific guidance  
38 that may be available, but should be used in conjunction with existing SOPs.  
39 Local units should complete the guide and review and update at least annually.  
40 This guide is only available electronically at:  
41 <http://www.nwcg.gov/pms/pubs/pubs.htm>.

42  
43  
44  
45

1 **Critical Incident Stress Management (CISM)**

2 A critical incident may be defined as a fatality or other event that can have  
3 serious long term affects on the agency, its employees and their families or the  
4 community. Such an event may warrant stress management assistance. The  
5 local agency administrator may choose to provide CISM for personnel having  
6 been exposed to a traumatic event.

7

8 The availability of CISM teams and related resources (e.g. defusing teams)  
9 varies constantly - it is imperative that local units pre-identify CISM resources  
10 that can support local unit needs.

11

12 Some incident management teams have Human Resource Specialists (HRSP) on  
13 their teams who may be able to assist local units with CISM needs. Further  
14 information is provided in appendix Q.